



Long-Term Surveillance and Maintenance Needs Assessment for the 25 DOE FUSRAP Sites

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The purpose of this assessment is to determine the radiological release status of the 25 U.S. Department of Energy (DOE) Formerly Utilized Sites Remedial Action Program (FUSRAP) Sites and identify long-term surveillance and maintenance (LTS&M) requirements for the sites. The primary data source was the Considered Sites Database (CSD, <http://csd.apps.em.doe.gov/>) maintained by DOE's Office of Environmental Management (EM). EM also maintains an eligibility collection of site information at DOE Headquarters (DOE-HQ); researchers did not access this information.

Background and Purpose

The U.S. Atomic Energy Commission, DOE's predecessor agency, chartered FUSRAP in 1974 to address concerns about the potential for residual radioactive contamination in the public and private sectors as a result of work accomplished in support of nuclear energy technology development that began in the early 1940s that was not being addressed under other programs. There are two main criteria for including a site in FUSRAP: 1) the radioactive contamination resulted from Manhattan Engineer District or U.S. Atomic Energy Commission (AEC) related activities and 2) DOE has the authority to remediate the portion of the contamination not being addressed under a AEC license.¹ DOE identified 46 sites for remediation under FUSRAP. Many of the sites had been remediated at the time activities ceased, but improved detection capabilities and changing standards for radiological protection caused DOE to revisit many of the sites.

In 1997, the U.S. Congress assigned responsibility for characterization, remediation, and verification of FUSRAP sites to the U.S. Army Corps of Engineers (USACE). By that time, DOE had completed remediation of 25 sites; these are referred to as the "Completed Sites" in the 1999 Memorandum of Understanding between DOE and USACE.² They are also referred to as the "25 DOE FUSRAP Sites" in the task order under which this work was performed.

Responsibility for the 25 DOE FUSRAP Sites resided with the Office of Environmental Management until December 2003, when DOE established the Office of Legacy Management and transferred responsibility for these sites to that organization. With this transition comes the need for new stewards to obtain site knowledge from site records and EM staff who have been involved with FUSRAP. Also, DOE LTS&M activities have evolved into a dedicated enterprise with accepted postclosure care procedures and protocols into which these sites should be integrated.

Summary of Findings

The documentation posted on the CSD clearly supports the conclusion that most of the 25 DOE FUSRAP Sites carry no restrictions on use and have no LTS&M requirements beyond records management and stakeholder support.

Researchers paid particular attention to land use assumptions and exposure scenarios used for certifying that a given site can be released for unrestricted use. Most sites were remediated to a condition that poses no unacceptable health risks to a hypothetical subsistence farmer or resident

¹ Some FUSRAP sites used for storage of residues and waste materials, and the New Brunswick Laboratory, are owned by DOE.

² Memorandum of Understanding between the U.S. Department of Energy and the U.S. Army Corps of Engineers Regarding Program Administration and Execution of the Formerly Utilized Sites Remedial Action Program (FUSRAP), March 1999.

with a home garden. This level of protectiveness is not confirmed for other sites, and additional research should be conducted to determine if land use should be restricted.

For several sites, the information points to a condition allowing unrestricted use, but it is not yet complete. For example, at the Niagara Fall Storage Site Vicinity Properties, USACE will complete closeout of three properties where additional contamination was recently found; Certification Dockets for several sites (e.g., Associate Aircraft and University of Chicago Sites) are in draft form; some Certification Dockets do not include the Federal Register Certification Notification; and the Remedial Action Report is not posted for some sites, or researchers could not access all the information (the Certification Docket web page for the Chapman Valve Site would not open).

One of the outcomes of this assessment is a list of issues and follow-on activities. Missing or inaccessible data and documents should be obtained. Some technical questions remain, which also should be resolved.

The task order under which this work was performed includes scope for a trip to DOE Headquarters to meet with DOE–EM FUSRAP staff. This activity is scheduled for fiscal year 2005 and should result in resolution of outstanding issues. When issues have been resolved, this report should be revised so it can be used as a reference for future site managers.

Acid/Pueblo Canyon Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Acid/Pueblo Canyon Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

Canyons in Pajarito Plateau Region, Los Alamos, NM.

Ownership

Los Alamos County, NM.

Operations

Liquid radioactive waste from Los Alamos National Laboratory acid sewer line 1943–1964.

Contaminants

Tritium, strontium, cesium, uranium, americium, and plutonium in soil.

Cleanup Criteria

Interim Soil Limits for D&D Projects, LA-UR-79-1865-Rev., by Healy, Rogers, and Wienke, 1979 (pre-FUSRAP standards).

Remedial Action

1966, 1967, 1982. Removal of debris from waste treatment plant, soil, and rock.

Release Survey

October 1984 (*Final report of Remedial Action at the Acid/Pueblo Canyon Los Alamos, New Mexico*, DOE/OR/20722-15, March 1984).

Independent Verification

None. Los Alamos National Laboratory did a post-remedial action survey (*Radiological Survey Following Decontamination Activities near the TA-45 Site*, LA-9831-MS, July 1983) but was never formally contracted for an independent verification.

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification August 1984; Federal Register Notice of Certification (published October 29, 1984, in 49 FR 43493).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Alba Craft Shop Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Alba Craft Shop Site and its associated vicinity properties are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on site or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site and vicinity properties complied with applicable cleanup/decontamination criteria and standards and released the properties for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

10-14 West Rose Ave., Oxford, OH
(includes nearby vicinity properties).

Ownership

Private.

Operations

Uranium metal fabrication (machining) for U.S. Atomic Energy Commission prime contractor National Lead Company of Ohio, 1952 to 1957.

Contaminants

Uranium metal.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific uranium-in-soil standard: 35 pCi/g (DOE memo, Wagoner to Price, July 1994).

Remedial Action

1957, 1994, 1995. Shop property: remediated building surfaces and equipment, soils.
Vicinity properties: remediated building surfaces, soil, sewer line (*Post Remedial Action Report for the Former Alba Craft Laboratory and Vicinity Properties*, DOE/OR/21949-387, August 1995).

Release Survey

August 1995 (*Post Remedial Action Report for the Former Alba Craft Laboratory and Vicinity Properties*, DOE/OR/21949-387, August 1995).

Independent Verification

April 1996, Oak Ridge National Laboratory (*Results of the Independent Radiological Verification Survey of the Former Alba Craft Laboratory Site*, Oxford, OH, ORNL/TM-12968, April 1996).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification March 1996; Federal Register Notice of Certification (published November 26, 1996, in 61 FR 60097); Ohio EPA and Ohio Dept. of Health, March 31, 1995.

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Albany Research Center Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Albany Research Center Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that any residual contamination remaining on site falls within current guidelines for use without radiological restrictions; assures that reasonably foreseeable future use of the property will result in no radiological exposure above current guidelines established to protect members of the general public as well as occupants of the site. Supplemental limits were applied to thorium contamination remaining beneath certain buildings. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

1450 Queen Ave. SW, Albany, OR.

Ownership

U.S. Bureau of Mines (U.S. Department of Interior).

Operations

Metallurgical research for U.S. Atomic Energy Commission and U.S. Energy Research and Development Administration between 1948 and 1978.

Contaminants

Uranium and thorium, some commingled with PCBs.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Supplemental limits were applied to limited occurrences of thorium contamination remaining in drains, subfloor pipes and soils, and on certain processing equipment (Memo, Liedle [BNI] to Adler [DOE], May 8, 1991).

Remedial Action

Remediation performed 1948–1978; 1987, 1988, 1990, and 1991. Remediated building surfaces and equipment, soil (*Post Remedial Action Report for the Albany Research Center*, DOE/OR/20722-207, April 1989, and *Post Remedial Action Report for Phase II Work Conducted During 1990–1991 at the Albany Research Center*, DOE/OR/20722-302, May 1992).

Release Survey

1988 and 1992 (*Post Remedial Action Report for the Albany Research Center*, DOE/OR/20722-207, April 1989, and *Post Remedial Action Report for Phase II Work Conducted During 1990–1991 at the Albany Research Center*, DOE/OR/20722-302, May 1992).

Independent Verification

April 1993, Oak Ridge Associated Universities (*Verification of Remedial Actions, Albany Research Center, Albany, Oregon*, ORAU89/1-29, October 1989, and *Verification Survey of the Phase II Actions, Albany Research Center, Albany, Oregon*, ORISE 93/0-20, April 1993).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification December 1992; Federal Register Notice of Certification (published February 23, 1993, in 58 FR 11041).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE–EM Records Room in Germantown, MD; Considered Sites fileroom at DOE–HQ.

Aliquippa Forge Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Aliquippa Forge Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that any residual contamination remaining on site falls within current guidelines for use without radiological restrictions; assures that reasonably foreseeable future use of the property will result in no radiological exposure above current guidelines established to protect members of the general public as well as occupants of the site. Supplemental limits were applied to uranium contamination remaining in the roof and support structures of one building. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

100 1st Street, Aliquippa, PA.

Ownership

Beaver County Corp. for Economic Development.

Operations

Uranium metal fabrication (heating and rolling rods) for U.S. Atomic Energy Commission in 1948 and 1949.

Contaminants

Uranium metal.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific uranium-in-soil standard: 100 pCi/g (DOE memo, Wagoner to Seay, April 1993).

Supplemental limits applied to uranium contamination remaining on roof and support structures.

Remedial Action

1950, 1988, 1993, 1994. Remediated building surfaces, equipment, and soil.

Release Survey

May 1996 (*Post Remedial Action Report for the Aliquippa Forge Site*, DOE/OR/21949-384, May 1996).

Independent Verification

July 1995, Oak Ridge Associated Universities (*Verification Survey of Buildings 3 and 8, Aliquippa Forge Site, West Aliquippa, PA*, July 1995 [no document number]).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification June 1996; Federal Register Notice of Certification (published October 30, 1996, in 61 FR 55981).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Associate Aircraft Tool and Manufacturing Company Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Associate Aircraft Tool and Manufacturing Company Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that any residual contamination remaining on site falls within current guidelines for use without radiological restrictions; assures that reasonably foreseeable future use of the property will result in no radiological exposure above current guidelines established to protect members of the general public as well as occupants of the site. Supplemental limits were applied to uranium contamination remaining beneath a concrete slab of one building. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

3660 Dixie Highway, Fairfield, OH.

Ownership

Private.

Operations

Uranium metal fabrication (machining) for U.S. Atomic Energy Commission prime contractor (National Lead Company of Ohio) in 1956.

Contaminants

Uranium metal.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific uranium-in-soil standard: 35 pCi/g (Wagoner to Price, February 1995).

Supplemental limits were applied to uranium contamination.

Remedial Action

1956, 1994, 1995, remediated building surfaces and equipment, drains, and soil.
Supplemental limits applied to uranium contamination remaining in soil beneath buildings
(*Post Remedial Action Report for the Associate Aircraft Site, Fairfield, OH*, September 1995
[no document number available]).

Release Survey

September 1995 (*Post Remedial Action Report for the Associate Aircraft Site, Fairfield, OH*,
September 1995 [no document number available]).

Independent Verification

January 1996, Oak Ridge National Laboratory (*Results of the Independent Verification Survey
at the Former Associate Aircraft Tool and Manufacturing Company Site, Fairfield, Ohio*,
ORNL/RASA-95/15, January 1996).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification September 1996; Federal Register Notice of Certification (published
September 16, 1996, in 61 FR 48667).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO,
Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites
fileroom at DOE-HQ.

B&T Metals Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the B&T Metals Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

425 West Town Street, Columbus, OH.

Ownership

Private.

Operations

Uranium metal fabrication (heating and extruding rods) for the Manhattan Engineer District through contract with DuPont in 1943.

Contaminants

Uranium metal.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific uranium-in-soil standard: 35 pCi/g (Adler to Wagoner, June 1994).

Remedial Action

1943, 1996, remediated building surfaces and equipment, drains, soil, and manholes in nearby streets. Completed June 1996.

Release Survey

1996 (*Post-Remedial Action Report for the B&T Metals Site, Columbus, Ohio*, DOE/OR/21949-406, October 1996).

Independent Verification

1996, Oak Ridge National Laboratory (*Results of the Independent Radiological Survey at B&T Metals, 425 West Town Street, Columbus, Ohio, CO001V*, June 1997).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification May 2001; Federal Register Notice of Certification (published June 26, 2001, in 66 FR 33954).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Baker & Williams Warehouses Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Baker & Williams Warehouses Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

513–519, 521–527, and 529–535 W. 20th Street, New York, NY.

Ownership

Private.

Operations

Short-term storage of uranium concentrates for the Manhattan Engineer District produced in Port Hope, Canada, from African uranium ores during the early 1940s.

Contaminants

Processed natural uranium; uranium ores, and oxides (orange and yellow sodium uranate, sodium uranyl carbonate, black uranium oxide).

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Remedial Action

Remediated areas of fixed contamination on interior surfaces (floors primarily, some lower walls) at two of the three warehouse buildings, Buildings 521–527 and Buildings 513–519, in

1991 and 1993, respectively. No contamination exceeding guidelines was found in Buildings 529–535. No removable contamination was found exceeding guidelines in any building. No exterior contamination was found. (*Post-Remedial Action Report for Buildings 521-527, Baker & Williams Warehouses Site, New York, New York*, DOE/OR/21949-301, February 1992, and *Post-Remedial Action Report for Buildings 513-519, Baker & Williams Site, New York, New York*, DOE/OR/21949-381, May 1994).

Release Survey

Buildings 521-527 completed in 1991, and Buildings 513–519 completed in 1993. (*Post-Remedial Action Report for Buildings 521-527, Baker & Williams Warehouses Site, New York, New York*, DOE/OR/21949-301, February 1992, and *Post-Remedial Action Report for Buildings 513-519, Baker & Williams Site, New York, New York*, DOE/OR/21949-381, May 1994.)

Independent Verification

May 1992 and June 1994, Oak Ridge Institute for Science and Education (*Verification Survey of the Baker & Williams Warehouses - Buildings 521-527, New York, New York*, ORISE 92/E-41, May 1992, and *Verification Survey of the Baker & Williams Warehouses - Buildings 513-519, New York, New York*, June 1994).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification; Federal Register Notice of Certification (published October 13, 1995, in 60 FR 53588).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE–EM Records Room in Germantown, MD; Considered Sites fileroom at DOE–HQ.

Baker Brothers Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Baker Brothers Site and its associated vicinity property are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

2551–2555 Harleau Place and 1000 Post Street, Toledo, OH
(includes vicinity property (VP) at 4400 Piehl Road, Ottawa Lake, MI).

Ownership

Private.

Operations

Fabricated and machined natural uranium metal slugs from processed uranium metal during the early and mid-1940s.

Contaminants

Uranium metal and decay products.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific uranium-in-soil standard: 35 pCi/g for total uranium (DOE memos: Wagoner to Price, *Uranium Guidelines for the Baker Brothers Site, Toledo, Ohio*, BNI CCN 132244,

July 10, 1995, and Wagoner to Price, *Uranium Guidelines for the Ottawa Lake, Michigan, Vicinity Property*, November 24, 1994).

Remedial Action

Baker Brothers: remediated interior building surfaces and exterior soil and concrete, completed September 1995.

Ottawa Lake VP: remediated exterior fill material, completed January 1995. (*Post-Remedial Action Report for the Former Baker Brothers, Inc. Site, Toledo, Ohio*, DOE/OR/21949-402, February 1997, and *Post-Remedial Action Report for the Baker Brothers Vicinity Property in Ottawa Lake, Michigan*, DOE/OR/21949-392, July 1996.)

Release Survey

Baker Brothers Site: September 1995 (*Post-Remedial Action Report for the Former Baker Brothers, Inc. Site, Toledo, Ohio*, DOE/OR/21949-402, February 1997).

Ottawa Lake VP: January 1995 (*Post-Remedial Action Report for the Baker Brothers Vicinity Property in Ottawa Lake, Michigan*, DOE/OR/21949-392, July 1996).

Independent Verification

Baker Brothers Site: Oak Ridge Institute for Science and Education (*Verification Survey of the Former Baker Brothers, Inc., Toledo, Ohio*, December 1996).

Ottawa Lake VP: Oak Ridge National Laboratory (*Results of the Independent Radiological Verification Survey at 4400 Piehl Road, Ottawa Lake, MI*, ORNL/RASA-95/16, April 1996).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification: Federal Register Notice of Certification (published August 24, 2001, in 66 FR 5019).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

End of current text

Bayo Canyon Area Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Bayo Canyon Area Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

The U.S. Atomic Energy Commission remediated contaminated areas from 1960 to 1963. DOE implemented additional remedial action under the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1982 to prevent disturbance of contaminated subsurface soil that remains within a 1.5-acre area. DOE erected six permanent monuments to demarcate the contaminated area and restrict the use of this land by prohibiting excavation until the year 2142, at which time the existing contamination will have undergone sufficient radioactive decay to allow the release of the affected area for unrestricted use.

Institutional controls (a restrictive covenant to be recorded with the deed) are in effect at the site that prevent excavation of contaminated subsurface soil. The governing authority and owner of the site, Los Alamos County, will maintain these controls. There are no permits or agreements in effect at the site.

Background and Supporting Information

Location

Canyons in Pajarito Plateau Region, Los Alamos, NM.

Ownership

Los Alamos County, NM.

Operations

Los Alamos National Laboratory activities: Conventional explosives testing using radioactive materials; waste from radiochemistry operations between 1943 and 1961.

Contaminants

Strontium-90, lanthanum, uranium (natural and depleted).

Cleanup Criteria

Interim Soil Limits for D&D Projects, LA-UR-79-1865-Rev., by Healy, Rogers, and Wienke, 1979 (pre- FUSRAP standards).

Strontium-90 in soil: 100 pCi/g (*Radiologic Guidelines for Application to DOE's Formerly Utilized Sites Remedial Action Program*).

Remedial Action

Contamination removed between 1960 and 1963. Monuments marking remaining contamination and restricting excavation erected 1982. Strontium-90 contamination remains in subsurface soil (*Final Report on Remedial Action at the Bayo Canyon Site, Los Alamos, New Mexico*, 2143, August 2003).

Release Survey

August 1982 (placement of monuments completed) (*Final Report on Remedial Action at the Bayo Canyon Site, Los Alamos, New Mexico*, 2143, August 2003).

Independent Verification

Not applicable.

Use restrictions

Excavation prohibited within 1.5-acre area until 2142.

Institutional Controls and Enforcement

Assuming deed restrictions are formalized, these would be enforced by the governing authority and owner, Los Alamos County.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

No DOE certification Statement or Federal Register Notice of Certification present in CSD New Mexico State Environmental Improvement Division (EID) concurred that contamination was not a hazard if "kept at depth" (Letter from EID to County of Los Alamos, December 1979).

Agreements and Permits

Restrictive covenant addressing excavation restrictions (not recorded).

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

C.H. Schnorr Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the C.H. Schnorr Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

644 Garfield Street, Springdale, PA.

Ownership

Private.

Operations

Uranium metal fabrication services in support of the Manhattan Engineer District during the mid-1940s—machined extruded uranium for the Hanford Pile Project, machined uranium slugs for University of Chicago and Dupont under Project 1553 (Exhibit I, Sect. 2.0 of the Certification Docket).

Contaminants

Natural uranium metal and decay products.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific standard for total uranium in soil: 100 pCi/g (DOE letter, Wagoner to Price, 8/25/94).

Remedial Action

Remediated interior building concrete surfaces and sub-concrete soil contamination at the belt-cutting, belt-fabrication, and loading dock rooms. No exterior contamination found; completed September 1994. (*Post-Remedial Action Report for the C.H. Schnorr Site, Springdale, Pennsylvania*, DOE/OR/21949-386, September 1995.)

Release Survey

September 1995. (*Post-Remedial Action Report for the C.H. Schnorr Site, Springdale, Pennsylvania* DOE/OR/21949-386, September 1995.)

Independent Verification

September 1995, Oak Ridge National Laboratory (*Results of Independent Radiological Verification Survey at the Former C.H. Schnorr & Company Site*, ORNL/RASA-95/1, September 1995).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification: (DOE letter; Owendoff to Rosen, Sept 6, 1996). Federal Register Notice of Certification (published September 11, 1996, in 61 FR 48135).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Chapman Valve Manufacturing Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Chapman Valve Manufacturing Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. Sometime following remedial action, the building was demolished, leaving only the concrete base slab. Supplemental limits were applied for residual uranium remaining on building surfaces, and the building was subsequently demolished. A follow-up radiological survey conducted in 2003 concluded that the property continued to meet the criteria for unrestricted use. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

203 Hampshire Street, Indian Orchard, MA.

Ownership

Private.

Operations

Machined extruded uranium rods (and possibly conducted rolling operations on uranium metal) for the Brookhaven Laboratory during the late 1940s (ref.: Exhibit I, Sect.2.0 of the Certification Docket).

Contaminants

Natural uranium metal and decay products.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

No site-specific uranium guideline determined; typical total uranium-in-soil guideline of 50 to 100 pCi/g and uranium-238 guideline of 35 to 50 pCi/g were used.

Supplemental limits applied for residual uranium remaining on the roof, interior trusses east of No. 7, portions of interior walls, and surface wood block flooring (DOE letter: Wagoner to Price, 7/27/95; *Technical Study for Remedial Action*, May 25, 1995; and *Hazard Assessment*, calculation No. 133-CV-001, December 18, 1995). Hazard assessment was conducted for worst-case scenarios (demolition and reuse of building materials).

Remedial Action

Remediated interior building surfaces (west end of Bldg. 23); floors, walls, and overhead beams; no subsurface soil contamination found beneath the concrete base slab except beneath a concrete ramp just inside the west equipment door; contamination found in floor drain lines. Completed September 1995. (*Post-Remedial Action Report for the Chapman Valve Site, Indian Orchard, Massachusetts*, DOE/OR/21949-408, November 1996.) Residual uranium remained imbedded in the asphaltic roof materials, wooden roof planks, and one location on the upper north wall; building subsequently demolished after 1996, concrete slab remains (DOE letter; Murray [ORNL] to McDaniel [USACE], July 16, 2003).

Release Survey

November 1996 (*Post Remedial Action Report for the Chapman Valve Site, Indian Orchard, Massachusetts*, DOE/OR/21949-408).

Independent Verification

May 1997, Oak Ridge National Laboratory (*Results of Independent Radiological Verification Survey at the Former Chapman Valve Manufacturing Company Site*, ORNL/RASA-95/17, May 1997). Oak Ridge National Laboratory performed a final verification radiological survey after the building was demolished (DOE letter; Murray [ORNL] to McDaniel [USACE], July 16, 2003).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE. Federal Register Notice of Certification (published January 20, 2004, in 69 FR 2908).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

End of current text

Chupadera Mesa Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Chupadera Mesa Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

In 1986, DOE eliminated the Chupadera Mesa Site from remediation under FUSRAP on the basis of extensive radiological data collected that indicated guidelines for contaminant concentrations were not exceeded. The site was released for “uncontrolled use.” There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

28 miles NE of the Trinity atomic bomb test site, White Sands Missile Range, NM (referred to as “Area 21”).

Ownership

Private (multiple owners).

Operations

None; open range, used primarily for ranching (cattle grazing), area is within the downwind fallout zone of the Trinity Test (the first atomic test) conducted on July 16, 1945.

Contaminants

Longer-lived radionuclides from fallout—primarily cesium-137, strontium-90, plutonium-239, cobalt-60, and europium-155.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Proposed no-action level for plutonium-239 and -240: 100 pCi/g.

Remedial Action

No action—radiological data collected by Los Alamos National Laboratory indicates DOE guidelines for remedial action were not exceeded (DOE letter; DeLaney, Division of Facility and Site Decommissioning Projects Office of Nuclear Energy to Garcia, Environmental Safety and Health Division of the DOE Albuquerque Operations Office, April 22, 1986).

Release Survey

Los Alamos National Laboratory (*Radiological Survey and Evaluation of the Fallout Area from the Trinity Test*, LA-10256-MS, June 1985).

Independent Verification

Not applicable.

Use restrictions

“Uncontrolled” (*Radiological Survey and Evaluation of the Fallout Area from the Trinity Test*, LA-10256-MS, June 1985). Report used to exclude the site from further consideration by FUSRAP, stating, “Comparison of the estimated inhalation and ingestion doses with the DOE and EPA guidance indicates there is no cause for concern for individuals living full time in the uncontrolled areas of the fallout zone.”

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification (April 22, 1986, letter; DeLaney, DOE Division of Facility and Site Decommissioning Projects Office of Nuclear Energy to Garcia, Environmental Safety and Health Division of the DOE Albuquerque Operations Office).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE–EM Records Room in Germantown, MD; Considered Sites fileroom at DOE–HQ.

Elza Gate Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Elza Gate Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

Melton Lake Industrial Park, Antwerp Lane, Oak Ridge, TN.

Ownership

Private.

Operations

Storage site for high-grade African uranium ore (pitchblende) and ore-processing residues for the Manhattan Engineer District in the early 1940s (Exhibit I, Sect.2.0 of the Certification Docket).

Contaminants

High-grade uranium ore (pitcheblende), uranium oxide residues, slag, and tailings.
Note: PCBs and lead contamination was present from post-DOE private plating operations.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific standards:

Uranium-238: 35 pCi/g (DOE memo; Wagoner to Price, February 6, 1991).

Lead: 1,000 mg/kg, remediated to 100 mg/kg (EPA, *Interim Guidance on Establishing Lead Cleanup Levels at Superfund Sites*, OSWER 9355.4-02, 1989).

PCBs: 50 mg/kg, remediated to 25 mg/kg (EPA, *Guidance on Remedial Action for Superfund Sites with PCB Contamination*, EPA/540/G-90/007, 1990)(Bechtel interoffice memo; Hubbard to Liedle, April 18, 1990).

Remedial Action

Remediated surface contamination on concrete slabs and surface and subsurface soil contamination (radionuclides to 2.1 meters deep, nonradionuclides to 0.3 meter deep). A minor amount of asbestos-contaminated soil and an asbestos-wrapped pipe were also remediated. Remediation completed 1991 (*Post-Remedial Action Report for the Elza Gate Site, Oak Ridge, Tennessee*, DOE/OR/21949-352, October 1992).

Release Survey

October 1992 (*Post-Remedial Action Report for the Elza Gate Site, Oak Ridge, Tennessee*, DOE/OR/21949-352, October 1992).

Independent Verification

December 1992. Oak Ridge Institute for Science and Education (*Verification Survey of the Elza Gate Site*, ORISE 92/L-30, December 1992).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification (Letter: Fiore to Whitfield, November 1, 1993). Federal Register Notice of Certification (published November 4, 1993, in 58 FR 59020).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

General Motors—Adrian Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the General Motors—Adrian Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Supplemental limits were applied to residual radioactive material left in the oil collection system discharge manholes, piping, and pipe chase. Following remediation, DOE certified that any residual contamination remaining on site falls within current guidelines for use without radiological restrictions, and assures that reasonably foreseeable future use of the property will result in no radiological exposure above current guidelines established to protect members of the general public as well as occupants of the site. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

1450 E Beecher Street, Adrian, MI.

Ownership

Private.

Operations

Extrusion of uranium metal used in the fabrication of reactor fuel elements for the U.S. Atomic Energy Commission in the Hanford, WA, and Savannah River, SC, reactors during the 1950s (Exhibit I, Sect.2.0 of the Certification Docket).

Contaminants

Uranium metal and decay products (Exhibit I, Section 4.2 of the Certification Docket).

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific standards of 35 pCi/g for total uranium in soil (DOE telecon memo; Kopotic to Williams, *GM Site Specific Soil Criteria*, March 6, 1995); 300 pCi/L for total uranium in oil, water, or liquid waste (DOE letter; Minaar [Michigan Dept. of Nat. Resources, Div. of Radiological Health], to Kopotic [DOE-ORO], *Comments on the Proposal for Management of Waste Oil Preparatory to Remediation of Uranium Contamination*, February 17, 1995, and DOE letter; Kopotic [DOE-ORO] to Gaede [GM], November 29, 1994).

Supplemental limits applied to residual radioactive material left in the oil collection system discharge manholes, piping, and pipe chase (*Hazard Assessment for the General Motors Site*, DOE/OR/21950-1017, June 1996).

Remedial Action

Remediated contaminated oil, scale, and sludge in the interior building pipe chase and oil collection system (sumps, traps, manholes, and drains) and a small area of exterior soil contamination behind the plant. Remediation completed July 1995 (*Post-Remedial Action Report for the Remedial Action at the General Motors Site, Adrian, Michigan*, DOE/OR/21949-397, March 1997). Residual uranium left in place within portions of the oil collection system discharge manholes, piping, and pipe chase. Unused portions of the piping system containing residual uranium were filled with concrete. Friable asbestos-containing material was removed from cables within electrical duct banks.

Release Survey

July 1995 (*Post-Remedial Action Report for the Remedial Action at the General Motors Site, Adrian, Michigan*, DOE/OR/21949-397, March 1997).

Independent Verification

March 1995, Oak Ridge National Laboratory (*Independent Radiological Verification Survey Results for the Remedial Action Performed at the Former Bridgeport Brass Company Facility, Adrian, Michigan*, ORNL/RASA-96/7, August 2002).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification. Federal Register Notice of Certification (published January 28, 1997, in 62 FR 4273).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

End of current text

Granite City Steel Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Granite City Steel Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

1417 State Street, Granite City, IL.

Ownership

Private.

Operations

In the late 1950s and early 1960s, uranium-238 ingots (and later, dingots) were x-rayed at the site for the U.S. Atomic Energy Commission, using a government-owned betatron machine (magnetic induction electron accelerator) to detect metallurgical flaws on an as-required basis (Exhibit I, Sect.2.0 of the Certification Docket).

Contaminants

Uranium-238 metal and decay products.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

No site-specific guidelines for uranium-238; 35 to 40 pCi/g limit used as applied at other FUSRAP sites.

Remedial Action

Remediated discrete localized spots of contamination in the x-ray building interior surfaces and equipment. No exterior contamination associated with U.S. Atomic Energy Commission operations. Remediation completed June 1993 (*Post-Remedial Action Report for the Granite City Site*, DOE/OR/21949-371, September 1993).

Release Survey

June 1993 (*Post-Remedial Action Report for the Granite City Site*, DOE/OR/21949-371, September 1993).

Independent Verification

July 1994, Oak Ridge National Laboratory (*Results of Independent Radiological Verification Survey at the Old Betatron Building, Granite City, Illinois*, ORNL/RASA-94/2, July 1994 and Letter, Murray [ORNL] to Williams [DOE], July 16, 1993).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification. Federal Register Notice of Certification (published June 13, 1994, in 59 FR 30573).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Herring-Hall-Marvin Safe Company Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Herring-Hall-Marvin Safe Company Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

1550 Grand Boulevard, Hamilton, OH.

Ownership

Private.

Operations

Fabrication and machining of natural uranium metal slugs from rolled stock under subcontract to prime Manhattan Engineer District contractors Dupont and the University of Chicago during the 1940s to the early 1950s (Exhibit I, Sect.2.0 of the Certification Docket).

Contaminants

Uranium metal and decay products, mixed waste (uranium-contaminated lead bolts).

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Remedial Action

Remediation of interior (third floor) building surfaces and floor drains. Included were 1,150 uranium-contaminated lead bolts (54 cu ft). Remedial action completed March 1995.

(Post-Remedial Action Report for the Herring-Hall-Marvin Safe Company Site, Hamilton, Ohio, DOE/OR/21949-391, February 1996).

Release Survey

March 1995 *(Post-Remedial Action Report for the Herring-Hall-Marvin Safe Company Site, Hamilton, Ohio, DOE/OR/21949-391, February 1996).*

Independent Verification

March 1995. Oak Ridge National Laboratory *(Results of Radiological Verification Survey at the Former Herring-Hall-Marvin Safe Company, 1550 Grand Boulevard, Hamilton Ohio, ORNL/RASA-95/14, November 1995).*

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification: Federal Register Notice of Certification (published December 2, 1996, in 61 FR 64072).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Kellex/Pierpont Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Kellex/Pierpont Site include:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring, on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

NJ Route 440 and Kellogg Street, Jersey City, NJ.

Ownership

Private (multiple owners).

Operations

Research and development for the Manhattan Engineer District and U.S. Atomic Energy Commission, 1943–1952; gaseous diffusion process for uranium enrichment and solvent extraction process for uranium recovery from ores.

Contaminants

Uranium, radium-226, thorium-232.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Radium-226 in soil: 5 pCi/g (letters Tyler [NJ] to Mott [DOE] 5/29/79 and 9/19/79); thorium-232 in soil: 5 pCi/g (Oak Ridge National Laboratory report 8/21/79 and letter Tyler [NJ] to Mott [DOE] 9/19/79).

Site-specific standard for uranium-238 in soil: 40 pCi/g (DOE proposed decontamination criteria 6/80 and letter Stanton [NJ] to Mott [DOE] 8/22/80).

Remedial Action

Initial cleanup in 1961.

Removed contaminated soil and debris between 1979 and 1986.

Release Survey

Oak Ridge National Laboratory (*Post-Decontamination Radiological Survey of a Portion of the Former Kellex Laboratory Site, Jersey City, New Jersey*, August 1979; *Radiological Survey of the Former Kellex Research Facility, Jersey City, New Jersey*, DOE/EV-0005/29, February 1982; and *Results of the Post Remediation Survey of Areas 4 through 10 of the Former Kellex Site, Jersey City, New Jersey*, DOE/EV-0005/29 [Supplement], February 1983).

Independent Verification

February 1983, Oak Ridge National Laboratory (*Certification Docket for the Former Kellex Corporation*, Jersey City, New Jersey; State of New Jersey, May 23, 1983).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

Delco-Levco property released by NJ (letter Tyler [NJ] to Mott [DOE] 8/29/79); Delco-Levco property complies with State criteria and released (letter Clusen [DOE] to Keighley [Delco-Levco] 10/14/79); Pierpont property certified by NJ as decontaminated (letter Kuhrtz [NJ] to Whitman [DOE] 5/23/83; DOE Statement of Certification for the Former Kellex Laboratory Site (Lots 1-G, 1-J, 1-L, 1-M, 1-N) 9/13/83.

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

Middlesex Municipal Landfill

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Middlesex Municipal Landfill (MML) Site include:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring, on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

Bounded by Mountain Ave, Monroe St., Bound Brook, within Borough of Middlesex, NJ.

Ownership

Parcel 1: Middlesex Presbyterian Church, 1190 Mountain Ave. (Block 219, Lot 1);
Parcel 2: Borough of Middlesex Mountain Ave. (Block 219, Lot 2).

Operations

Disposal of soil contaminated with pitchblende (high-grade uranium ore) by activities at Middlesex Sampling Plant; soil was from site grading and construction of ore storage pads in 1948.

Contaminants

Low-level residual source material: radium-226, thorium, uranium.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Screening guideline for uranium in soil: 75 pCi/g (DOE memo Greenleigh to Snyder 5/30/1980).

Remedial Action

Removed contaminated soil. Remediation completed 1986 (*Post-Remedial Action Report for the Middlesex Municipal Landfill, Middlesex, NJ*, DOE/OR/20722-135, February 1987).

Release Survey

1986 (*Post-Remedial Action Report for the Middlesex Municipal Landfill, Middlesex, NJ*, DOE/OR/20722-135, February 1987).

Independent Verification

Oak Ridge Associated Universities (*Verification of Remedial Action, Middlesex Municipal Landfill, Middlesex, NJ*, September 1987).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certifications:

Statement of Certification: Property Forming Part of the Middlesex Municipal Landfill (Parcel 1), Bryan Walker, 4/7/89;

Statement of Certification: Property Forming Part of the Middlesex Municipal Landfill (Parcel 2), Bryan Walker, 4/7/89; Federal Register Notice of Certification 5/8/89.

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

National Guard Armory

LTS&M Requirements

Long-term surveillance and maintenance requirements for the National Guard Armory Site include:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring, on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

52nd Street and Cottage Grove Ave., Chicago, IL.

Ownership

State of Illinois.

Operations

1942–1951, storage and processing of uranium metal; central procurement and shipping location for Manhattan Engineer District Metallurgical Laboratory.

Contaminants

Natural uranium metal and dry uranium oxide.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific standard, uranium-238 in soil: 150 pCi/g (*Derivation of a Uranium Residual Radioactivity Guideline for the National Guard Armory in Chicago, IL*, Argonne National Laboratory, May 1987).

Remedial Action

Initial surveys in 1977 and 1978. Removed contamination from building surfaces, catch basins (sludge), and soil. Remediation completed 1987 (*Post-Remedial Action Report for the National Guard Armory, Chicago, IL*, Rev. 1, DOE/OR/20722-184, December 1988).

Release Survey

1987 (*Post-Remedial Action Report for the National Guard Armory, Chicago, IL*, Rev. 1 DOE/OR/20722-184, December 1988).

Independent Verification

June 1987, Oak Ridge Associated Universities (*Verification of Remedial Action, Illinois National Guard Armory, Chicago, IL*, ORAU 88/A-20, February 1988).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certifications:

Statement of Certification: National Guard Armory in Chicago, Illinois, J.E. Baublitz, 2/17/89 [text of *Federal Register* notification].

Statement of Certification: National Guard Armory in Chicago, Illinois, P.J. Gross, 1/31/89 Federal Register Notice of Certification 2/17/89.

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

New Brunswick Laboratory Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the New Brunswick Laboratory Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

990 Jersey Avenue, New Brunswick, NJ.

Ownership

Federal (U.S. Department of Energy).

Operations

Operated as a general nuclear chemistry laboratory performing radiochemical analyses from 1948 to 1977 for the government's (Manhattan Engineer District, U.S. Atomic Energy Commission, ERDA, and DOE) reactor and weapons programs.

Contaminants

Uranium and thorium ores, high-purity plutonium, americium, and enriched uranium.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific standard for total uranium: 100 pCi/g (DOE memo Wagoner to Price 8/1990).

Remedial Action

Prior to FUSRAP, site partially remediated in two phases between 1978 and 1983. Phase I consisted of removing contaminated accessible plumbing, equipment, and portions of floors, walls, and ceilings. Phase II included the removal of all aboveground structures, including contaminated concrete foundations and on-site drain lines and radioactively contaminated soil on the front two-thirds of the property. In 1996, under FUSRAP, additional contaminated soil was remediated from a location along the south fence line and from within a railroad spur that had been backfilled with soil contaminated with pitchblende uranium ore received from the Middlesex Municipal Landfill (Exhibit I, Sect. 1 and 2 of the Certification Docket and *Post Remedial Action Report for the Remedial Action at the New Brunswick Laboratory Site, New Brunswick, New Jersey*, DOE/OR/21949-411, July 1997).

Release Survey

June–November 1996 (*Post Remedial Action Report for the Remedial Action at the New Brunswick Laboratory Site, New Brunswick, New Jersey*, DOE/OR/21949-411, July 1997).

Independent Verification

Oak Ridge Institute for Science and Education (*Verification Survey of the New Brunswick Laboratory Site, New Brunswick, New Jersey*, July 2001, ORISE 01-0987).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification. Federal Register Notice of Certification (published September 21, 2001, in 66 FR 48863).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE–EM Records Room in Germantown, MD; Considered Sites fileroom at DOE–HQ.

Niagara Falls Storage Site Vicinity Properties

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Niagara Falls Storage Site Vicinity Properties (VP) Site include:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring, on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. Supplemental limits were applied to the downstream end of the Central Drainage Ditch. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

Various parcels subdivided from the former Lake Ontario Ordnance Works, Lewiston, New York.

Ownership

Private (multiple owners).

Operations

Storage of processing residues, uranium metal, and remedial action radioactive waste beginning in 1944 under Manhattan Engineer District to present. Transshipment of radioactive ores and uranium and thorium metal goods from 1944 to at least 1951. Formerly Lake Ontario Ordnance Works, VPs sold after 1971; 21 of 25 VPs were contaminated.

Contaminants

Natural uranium, radium, thorium in soil and sediments. Radium concentration in ground water does not exceed standard.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Supplemental limits for Central Drainage Ditch (20 pCi/g radium-226).

Remedial Action

1953 to 1959, debris and contaminated soil consolidated to allow transfer of ownership of portions of site. Properties A, H', L, M, N/N', Q, R, S, U, V, X, and West Ditch, remediated in 1983 and 1984 to FUSRAP guidelines; Central Ditch remediated in 1983–84 to FUSRAP guidelines, except supplemental limits applied from 500 feet west of Lutts Road to the confluence with Fourmile Creek (*Post Remedial Action Report for the Niagara Falls Storage Site Vicinity Properties- 1983 and 1984, Lewiston, New York, DOE/OR/20722-84, December 1986*).

Release Survey

Unknown.

Independent Verification

Unknown.

Use restrictions

Unknown.

Institutional Controls and Enforcement

Unknown.

Monitoring and Site Inspections

Unknown.

Certification and Regulator Concurrence

Unknown.

Agreements and Permits

Unknown.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE–EM Records Room in Germantown, MD; Considered Sites fileroom at DOE–HQ.

Seymour Specialty Wire Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Seymour Specialty Wire Site, Seymour, Connecticut, are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. DOE may have applied supplemental limits to a drain system. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

15 Franklin Street, Seymour, CT.

Ownership

Private.

Operations

Cold-forming of natural uranium metal, storage and laboratory operations, between 1962 and 1964.

Contaminants

Uranium and its decay products.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

DOE may have applied supplemental limits to a drain system.

Remedial Action

Remediated contamination on building surfaces in the Rufert Building (primarily floors, floor drains, expansion joints, walls, and overhead surfaces [ducts, fans, and light fixtures]). Two small exterior soil areas were excavated and backfilled; three manholes and the connecting piping were not remediated because the contamination was nontransferable and extremely resistant to decontamination efforts—hazard assessment performed. Remediation completed March 1993.

Release Survey

1993 (*Post Remedial Action Report for the Removal Action at the Seymour Specialty Wire Site, Seymour, Connecticut*, DOE/OR/21949-370, January 1994).

Independent Verification

March 1993, Oak Ridge National Laboratory (*Results of the Independent Radiological Verification Survey at the Former Bridgeport Brass company Facility, Seymour, Connecticut*, ORNL/TM-12390, March 1995).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification 12/21/1994. Federal Register Notice of Certification (published January 24, 1995, in 60 FR 4613).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE–EM Records Room in Germantown, MD; Considered Sites fileroom at DOE–HQ.

University of California (Gilman Hall)

LTS&M Requirements

Long-term surveillance and maintenance requirements for the University of California, Gilman Hall Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Surface contamination remains in the buildings and has been covered, shielded, or fixed to reduce exposure and risk to acceptable levels. Radiological controls provided by the University's California State General License 1333-62. The University retains responsibility for the remaining radioactive contamination and agrees to clean up the remaining contamination in accordance with appropriate standards prior to terminating its General License. Other than the General License, there are no supplemental limits, institutional controls, other permits, or agreements in effect at the site.

Background and Supporting Information

Location

Gilman Hall, University of California, Berkeley, CA.

Ownership

State of California.

Operations

Research on production and chemical properties of plutonium in support of Manhattan Engineer District and U.S. Atomic Energy Commission in the 1940s.

Contaminants

Uranium, plutonium, cesium, and americium.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985 (DOE memos: Frangos to Meyers 11/28/79, 5/9/80, and 7/9/80).

Remedial Action

Removal and replacement of contaminated walls, lab bench, baseboards, and sills; cover (shield) or seal contaminated floor. Remediation completed February 1983; conducted by Lawrence Berkeley Laboratory (Exhibit 1 of the Certification Docket and Letter from J. Gates to Calvin Jackson 11/3/81).

Release Survey

June 1983 (*Radiological Survey and Remedial Actions, Gilman Hall, University of California, Berkley*, under cover of letter from J. Gates, University of California, to J. Davis, DOE, dated May 6, 1983).

Independent Verification

Not performed.

Use restrictions

Use is restricted by the controls of the University of California's State General License 1333-62.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification March 26 (?), 1985 (date partially illegible), unknown if *Federal Register* notice was posted.

Agreements and Permits

University of California's State General License 1333-62 controls acceptable use of the site. The University of California accepted responsibility for the remaining contamination and agrees to clean up these remaining residues in accordance with applicable standards and guidelines through normal contract closeout procedures prior to expiration of its General License.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

University of Chicago

LTS&M Requirements

Long-term surveillance and maintenance requirements for the University of Chicago Site, Chicago, Illinois, are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following ***are not required*** at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no supplemental limits, institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

Ellis Ave and 58th Street, Chicago, IL.

Ownership

Private.

Operations

Production and purification of plutonium; metals toxicology, R&D for creation and operation of Chicago Pile-1 and Manhattan Engineer District/U.S. Atomic Energy Commission activities. Research occurred from 1942 to 1952. Work occurred in the New Chemistry Lab and Annex, West Stands, Ryerson Physical Lab, Eckhart Hall, Kent Chemical Lab, G.H. Jones Chemical Lab, and Ricketts Lab (Section 3.0 of Certification Docket).

Contaminants

Uranium, plutonium, thorium, and radium (*Certification Docket for the Remedial Action Performed at the University of Chicago, Chicago, Illinois, from December 1982 to October 1987, December 1989* [draft, no document number] Section 4.2).

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific guideline for uranium in soil: 150 pCi/g (*Certification Docket for the Remedial Action Performed at the University of Chicago, Chicago, Illinois, from December 1982 to October 1987*, December 1989 [draft, no document number] Section 4.2).

Remedial Action

1982, 1983, and 1987. Remediated building surfaces and sewer lines. New Chemistry Lab and Annex, West Stands, and Ricketts Lab have been torn down; Argonne National Laboratory performed removal and decontamination of walls, floors, ceilings, roofing tiles, and ductwork in the Ryerson Lab, Eckhart Hall, and Jones Lab. University of Chicago decontaminated Kent Chemical Lab; Bechtel National, Inc. cleaned the ductwork in Jones Lab (*Certification Docket for the Remedial Action Performed at the University of Chicago, Chicago, Illinois, from December 1982 to October 1987*, December 1989 [draft, no document number] Sections 3.0 and 5.2). Remediation completed October 1987.

Release Survey

December 1983, August 1984, and January 1989 (*Certification Docket for the Remedial Action Performed at the University of Chicago, Chicago, Illinois, from December 1982 to October 1987*, December 1989 [draft, no document number], Section 5.3).

Independent Verification

1987, Oak Ridge Associated Universities (*Verification of Remedial Action on Ventilation Systems, Jones Chemical Laboratory, University of Chicago, Illinois*, January 1989, and Letter Report: Verification Activities at University of Chicago, M.R. Landis to A. Wallo, June 14, 1989).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE certification reportedly published in *Federal Register*.

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

End of current text

Ventron Corporation Site

LTS&M Requirements

Long-term surveillance and maintenance requirements for the Ventron Corporation Site are as follows:

- Managing site records,
- Responding to stakeholder inquiries.

The following *are not required* at the site:

- Monitoring: on or off site,
- Site surveillance or inspection,
- Site physical property maintenance.

DOE applied supplemental limits to contamination remaining on concrete slabs. Following remediation, DOE certified that the site complied with applicable cleanup/decontamination criteria and standards and released the property for unrestricted use. There are no institutional controls, permits, or agreements in effect at the site.

Background and Supporting Information

Location

Congress Street, Beverly, MA.

Ownership

Private.

Operations

From 1942 to 1948 conducted uranium-processing operations to converted uranium oxide to uranium metal powder for the Manhattan Engineer District. Other operations included the recovery of uranium from scrap and turnings resulting from the fabrication of nuclear fuel rods. Note: Non-Manhattan Engineer District-related thorium operations involving the purification of thorium compounds were conducted at the site following Manhattan Engineer District operations (Ref.: Exhibit I, Sect.1.0 of the Certification Docket).

Contaminants

Natural uranium metal and decay products. Note: Thorium-232 and radium-226 contamination present as a result of non-Manhattan Engineer District-related thorium purification operations conducted privately following Manhattan Engineer District operations.

Cleanup Criteria

U.S. Department of Energy *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites*, Rev. 1, July 1985.

Site-specific standard for total uranium: 100 pCi/g (DOE memo Wagoner to Price September 1, 1993). Argonne National Laboratory performed a risk analysis using the resident subsistence farmer as a most conservative scenario and concluded that the site-specific criteria for total uranium of 100 pCi/g is equivalent to an annual exposure of 36 millirem, well below the 100 millirem per year DOE dose guideline.

Supplemental limits were applied to residual radioactive material remaining on building slabs left in place following remediation.

Remedial Action

Remediated exterior soil and interior surface contamination, both government and non-government related, to below guidelines established for the site in two phases: September 1995 (harbor area) and from May 1996 to March 1997 (remainder of the site) (*Post-Remedial Action Report for the Remedial Action at the Ventron Site, Beverly, Massachusetts*, Document No. 2144, March 2003).

Release Survey

1996 and 1997 (*Post-Remedial Action Report for the Remedial Action at the Ventron Site, Beverly, Massachusetts*, Document No. 2144, March 2003).

Independent Verification

Oak Ridge Institute for Science and Education (*Verification Survey of the Ventron Site, Beverly, Massachusetts*, ORISE 03-0321, February 2003).

Use restrictions

Unrestricted.

Institutional Controls and Enforcement

Not applicable.

Monitoring and Site Inspections

Not required.

Certification and Regulator Concurrence

DOE Certification. Federal Register Notice of Certification (published October 20, 2003, in 68 FR 60097).

Agreements and Permits

None.

Records Locations

National Archives and Records Administration Federal Records Centers, Kansas City, MO, Suitland, MD, and the DOE-EM Records Room in Germantown, MD; Considered Sites fileroom at DOE-HQ.

End of current text